

Chapter

8

ESTIMATE OF DEVELOPMENT COSTS



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*for the Airport Master Plan for
Whiteriver Airport*

8.0 CAPITAL IMPROVEMENT PLAN (CIP)

Future development at the Whiteriver Airport as included in this study covers a twenty year period. Development items are grouped into three phases. Phase I is short-term (0 - 5 years), Phase II is intermediate-term (5 - 10 years), and Phase III is long-term (10 - 20 years). Preliminary cost estimates based on conceptual layouts are included for each item in the Capital Improvement Program. They are based on the recommended facility requirements discussed in Chapter V and the development alternative selected in Chapter VI. The phasing of projects assists the airport sponsor in budgetary planning for construction improvements which are needed to provide safe and functional facilities for aviation demands. Phased development schedules also assist the airport sponsor in contingencies and construction. The following table assumes the FAA will continue to provide 91.06 percent of the funding for eligible projects in the State of Arizona. Local funding must provide the remaining 8.94 percent of the total cost. The State of Arizona does not currently participate in funding airport development projects on Indian Reservations.

Certain items, such as hangar construction, fuel facilities, and pavement maintenance items must be funded entirely by the Sponsor (or third party sources). Chapter 9, Financial Plan, discusses means of financing the local share.

The proposed capital improvement projects are summarized below. The estimated costs for the proposed projects, along with proposed timeframe, cost share breakdown, and a brief justification, are depicted in Table VIII-1 at the end of this chapter.

- Rehabilitate and strengthen existing runway and apron.
- Relocate the parallel taxiway 40 feet to the northwest and extend to full length.
- Extend the Runway Safety Area by approximately 220 feet at the approach end of Runway 1.
- Install taxiway lighting and runway visual aids.
- Construct helipads and support infrastructure.
- Expand aircraft parking apron.

8.1 PAVEMENT MAINTENANCE PLAN

Periodic maintenance is necessary to prolong the useful life of the airport pavements. The affects of weather damage, oxidation, and aircraft passes cause the pavement to deteriorate. The accumulation of moisture in the pavement causes heaving and cracking and is one of the greatest causes of pavement distress. The sun's ultraviolet rays oxidize and break down the asphalt binder in the pavement mix. This accelerates ravelling and erosion and can reduce asphalt thickness.

The appropriate pavement maintenance will minimize the affects of weather damage and oxidation. Crack sealing is accomplished to keep moisture from accumulating inside and underneath the pavement and should be accomplished at least every five years, and prior to fog sealing or overlaying the pavements. Fog seals, slurry seals, and coal tar emulsion (fuel resistant) seals are spread over the entire paved area to replenish the binder lost through oxidation and to seal, rejuvenate, and waterproof the pavement. Slurry seals also include an aggregate to increase the friction coefficient of the pavement. Asphalt overlays are accomplished near the end of the useful life of the pavement. A layer of new asphalt is placed over the existing pavement to renew the life of the pavement and to recover lost strength due to deterioration. Unless specially designed, the overlay is not intended to increase the weight bearing capacity of the pavement. Overlays may be supplemented with a porous friction course or grooving to increase friction and minimize hydroplaning. Remarketing of the pavement is required following a fog seal or overlay.

The recommended pavement maintenance cycle time frames are listed below. It should be noted that the time frames are recommendations only. Actual pavement deterioration will be affected by use of the airport and weather exposure. Maintenance actions should be programmed as necessary through close monitoring and inspection of the pavements.

Pavement Maintenance Cycle (Approximate Time Frames):

- Crack Seal Pavement (0-5 Years)
- Crack Seal and Fog Seal Pavement (5-10 Years)
- Overlay Pavement (15-18 Years)

**TABLE VIII-1
CAPITAL IMPROVEMENT PLAN**

YEAR	DESCRIPTION	TOTAL COST	FAA	LOCAL	JUSTIFICATION
1998	Crack Seal & Seal Coat Runway, Taxiway, and Apron (93,000 S.Y.)	\$63,000	\$0	\$63,000	Needed to maintain existing pavements.
1998	Site Prep for Relocated Taxiway	\$350,000	\$318,710	\$31,290	Needed to meet FAA standards.
1998	Extend Safety Area Runway 1	\$225,000	\$204,885	\$20,115	Needed to meet FAA standards.
1998	Install Chain Link Security Fence	\$120,000	\$109,272	\$10,728	Needed to prevent inadvertent entry by persons or animals.
1998	Relocate Operations Tower, Slurry Tanks, and Fence	\$50,000	\$45,530	\$4,470	Needed to accommodate existing and forecasted aircraft.
1998	Rehabilitate & Strengthen Runway 1/19	\$1,400,000	\$1,274,840	\$125,160	Needed to repair failed pavements.
1998	Rehabilitate & Strengthen Aircraft Parking Apron	\$90,000	\$81,954	\$8,046	Needed to repair failed pavements and meet proper grading criteria.
1999	Relocate Slurry Containment Pad	\$150,000	\$136,590	\$13,410	Needed to meet Taxiway Object Free Area standards.
1999	Construct Full Length Parallel Taxiway	\$775,000	\$705,715	\$69,285	Needed to meet FAA standards.
1999	Replace/Install MIRLS & MITLS	\$200,000	\$182,120	\$17,880	Enhances safety and efficiency of aircraft operations.
1999	Install PAPIs, REILS, and AWOS	\$160,000	\$145,696	\$14,304	Enhances safety and efficiency of aircraft operations.
1999	Construct Helipads	\$330,000	\$300,498	\$29,502	Needed to meet existing and forecasted demand for helicopter operations.
1999	Pave Access Road to Helipads	\$50,000	\$45,530	\$4,470	Needed to service helicopters .
1999	Extend Waterline to Helipad Area	\$100,000	\$91,060	\$8,940	Needed to service helicopters .
2000	Expand Aircraft Parking Arpon	\$150,000	\$136,590	\$13,410	Needed to accommodate forecasted aircraft parking demand.
2002	Update Airport Layout Plan (ALP).	\$50,000	\$45,530	\$4,470	Needed to update airport plans, forecasts, and CIP.
TOTAL Phase I (0 to 5 Years)		\$4,263,000	\$3,824,520	\$438,480	

**TABLE VIII-1
CAPITAL IMPROVEMENT PLAN**

YEAR	DESCRIPTION	TOTAL COST	FAA	LOCAL	JUSTIFICATION
2003	Crack Seal and Fog Seal Runway (59,000 S.Y.)	\$45,000	\$0	\$45,000	Needed to maintain existing pavements.
2004	Crack Seal and Fog Seal Taxiway and Apron (40,000 S.Y.)	\$27,000	\$0	\$27,000	Needed to maintain existing pavements.
TOTAL Phase II (6 to 10 Years)		\$72,000	\$0	\$72,000	
2008	Crack Seal and Fog Seal Runway (59,000 S.Y.)	\$45,000	\$0	\$45,000	Needed to maintain existing pavements.
2004	Crack Seal and Fog Seal Taxiway and Apron (40,000 S.Y.)	\$27,000	\$0	\$27,000	Needed to accommodate forecasted ground vehicles.
2013	Overlay Runway (59,000 S.Y.)	\$360,000	\$327,816	\$32,184	Needed to maintain existing pavements.
2014	Overlay Taxiway and Apron (40,000 S.Y.)	\$240,000	\$218,544	\$21,456	Needed to maintain existing pavements.
TOTAL PHASE III (11 to 20 Years)		\$672,000	\$546,360	\$125,640	
TOTAL (20 Year Planning Period)		\$5,007,000	\$4,370,880	\$636,120	
<i>All cost estimates shown in 1997 dollars.</i>					